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Serial No. 10/549,243
PATENT

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: :
Yoshikuni SASAKI et al. : Art Unit: 1796
Serial No.: 10/549,243 :
Filed: September 12, 2005 : Examiner: Marc S. Zimmer
For: ADDITIVE FOR OPTICAL RESINS, AND OPTICAL RESIN COMPOSITION

DECLARATION UNDER 37 CFR §1.132

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

I, Yoshikuni SASAKI, a citizen of Japan, hereby declare and state the following:

1. I am one of co-inventors of U.S. Patent Application Serial No. 10/549,243 filed on September 12, 2005.
2. I am thoroughly familiar with the contents of said Application, its prosecution before the United States Patent and Trademark Office and the references cited therein.
3. I graduated from the Faculty of Engineering, Kyoto University, Japan in the year 1996.
4. I have been employed by Nippon Shokubai Co., Ltd. of Osaka, Japan, one of the assignees of said application in the year 1996 and have been engaged in research and development of particles at the Research Laboratory of the company.
5. The following experiments were conducted by myself or under my direct supervision and control in order to prove that the additive obtained from the process for producing an additive for optical resins exhibits excellent physical properties unexpected from Fukumoto et al., JP 9-12855 and Kuramoto et al., JP 2003-82045.

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EXPERIMENTAL:**Experiment 1**

The same procedures as in Example 1 of the present specification were carried out. Its procedures are specifically described below:

A mixed solution of 650 parts of ion-exchanged water, 2.6 parts of 25 % aqueous ammonia solution, and 322 parts of methanol was placed into a flask equipped with a condenser, a thermometer, and a dropping inlet. While this mixed solution was stirred, 24 parts of γ -methacryloxy-propyltrimethoxysilane was added from the dropping inlet to the mixed solution to initiate a reaction, and its stirring was continued for 2 hours.

At this stage, the particle diameters of the resulting polysiloxane particles were measured with Coulter Multisizer (produced by Beckmann Coulter Electronic, Inc.). As a result, the average particle diameter of the polysiloxane particles was $3.1\mu\text{m}$, and the particles had a sharp particle distribution.

Separately, a material, having been prepared by adding 4.8 parts of an anionic surfactant (N-08, produced by Dai-ichi Kogyo Seiyaku Co., Ltd.) and 240 parts of ion-exchanged water to a mixed solution of 480 parts of styrene and 10.1 parts of 2,2'-azobis(2,4-dimethylvaleronitrile) (V-65, produced by Wako Pure Chemical Industries, Ltd.), was emulsify-dispersed with a homomixer for 15 minutes to prepare an emulsion. This emulsion was added from the dropping inlet after 2 hours from the aforementioned reaction initiation (after the 2-hour stirring). After this addition, the stirring was continued for another 1 hour.

The resultant reaction liquid was heated to 65°C under a nitrogen atmosphere and then retained at $65\pm 2^\circ\text{C}$ for 2 hours to carry out a radical polymerization reaction.

At this stage, the particle diameters of the resulting particles were measured with Coulter Multisizer (produced by Beckmann Coulter Electronic, Inc.). As a result, the average particle diameter of the resulting particles was $10.2\mu\text{m}$, and the particles had a sharp particle distribution.

The above results demonstrate that the average particle diameter is increased from $3.1\mu\text{m}$ to $10.2\mu\text{m}$.

Also, the particles were observed with a scanning electron microscope. As a result, it was confirmed that the particles were spherical microparticles having a diameter of about $10\mu\text{m}$.

Comparative Experiment 1

The same procedures as in Experiment 1 were carried out except that the anionic surfactant was not used.

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The particle diameters of the resulting polysiloxane particles were measured with Coulter Multisizer (produced by Beckmann Coulter Electronic, Inc.). As a result, the average particle diameter of the polysiloxane particles was $3.1\mu\text{m}$, and the particles had a sharp particle distribution.

Also, the particle diameters of the resulting particles after the polymerization reaction were measured with Coulter Multisizer (produced by Beckmann Coulter Electronic, Inc.). As a result, the particles had a broad particle distribution. Therefore, the particles were observed with a scanning electron microscope. As a result, a lot of spherical microparticles having a diameter of about $3\mu\text{m}$ and massive large blocks were observed. From this fact, it is apparent that the styrene added was not absorbed into the polysiloxane particles.

Discussion:

According to Experiment 1, the average particle diameter is greatly increased from $3.1\mu\text{m}$ to $10.2\mu\text{m}$. It is thought that this reason will be based on that since the styrene is used together with a surfactant, the styrene is efficiently absorbed into the polysiloxane particles.

In contrast, according to Comparative Experiment 1, after the polymerization reaction, a lot of spherical microparticles having a diameter of about $3\mu\text{m}$ and massive large blocks are observed. It is thought that this will be based on that since the styrene is not used together with a surfactant, the styrene is not efficiently absorbed into the polysiloxane particles.

Therefore, it is proved that when the monomer is previously absorbed into the polysiloxane particles by using a surfactant, and thereafter the monomer is polymerized, the resulting particles have a greatly increased particle diameter.

However, Fukumoto et al. and Kuramoto et al. do not disclose or suggest that the monomer is previously absorbed into the polysiloxane particles by using a surfactant, and thereafter, the monomer is polymerized. Also, they do not disclose or suggest that the resulting particles have a greatly increased particle diameter when the monomer is previously absorbed into the polysiloxane particles by using a surfactant, and thereafter the monomer is polymerized.

Accordingly, since these cited references do not disclose or suggest that the monomer is previously absorbed into the polysiloxane particles by using a surfactant, and the monomer is polymerized, and that the resulting particles have a greatly increased particle diameter, there is no reason in these cited references to arrive at the present invention.

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6. The undersigned petitioner declares further that all statements made herein of my own knowledge are true; and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both under 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

7. Further declare saith not.

Yoshikuni Sasaki
Yoshikuni SASAKI

June 17, 2008
Date